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EXAMINER

PUENTE, EVA YI ZHENG

ART UNIT

PAPER NUMBER

2611

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/981,795 | <b>Applicant(s)</b><br>SCHETELIG ET AL. |  |
|                              | <b>Examiner</b><br>EVA Y. PUENTE     | <b>Art Unit</b><br>2611                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-19 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 20,21,27,28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/30/08</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### *Request for Continued Examination*

1. The request filed on April 30, 2008, for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/981,795 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Response to Arguments***

2. Applicant's arguments, with respect to the rejection(s) of claim(s) 12-28 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12-15, 18, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable by Bouillet et al (US 6,445,423) in view of Persson et al (US 6,587,500).
- a) Regarding claim 12, Bouillet et al disclose a method comprising:

comparing a bit stream derived from a received digital data stream with an expected bit sequence to determine a correlation value for detecting a data packet (330 and 320 in Fig. 3; Col 4, L4-8);

starting data extraction from the bit stream when the correlation value exceeds a threshold value to indicate that a data packet has been detected (328 in Fig. 3; Col 4, L10-18; the acquired signal are send to phase detector 310 for demodulation);

continuing comparing the bit stream with the expected bit sequence (320 in Fig. 3; the segment sync and timing recovery network 24 has a feedback loop and is an on-going process); and

restarting data extraction from the bit stream (since the segment sync and timing recovery network 24 is an on-going process, the subsequent digital data will be correlated, compared with the threshold value, and demodulated again.).

Bouillet et al. disclose acquire signal that exceeds the threshold value in the sync generator (328 in Fig. 3), but failed to teach storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value.

However, Persson et al disclose comparison of a correlation value with a variable threshold value, wherein the correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25). Therefore, it is

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obvious to one of ordinary skill in art to combine the teaching of updating correlation value with threshold value as taught by Persson et al in the digital receiver of Bouillet et al. This way the threshold value is updated as the maximum correlation value continuously. By doing so, provide better signal receiving process and reduce probability of error.

b) Regarding claim 13, Persson et al disclose wherein the threshold value is a programmable value (Fig. 4; Col 4, L30-40).

c) Regarding claim 14, Persson et al disclose wherein the correlation value is stored as the maximum correlation value each time data extraction is started or restarted and the new correlation value continuously determined after starting or restarting data extraction is compared with the stored maximum correlation value (Fig. 4; L40-53).

d) Regarding claim 15, Persson et al. disclose wherein data extracted prior to restarting data extraction is rejected (since Persson teaches updating threshold value to reduce the probability of false alarm (Col 3, L21-25), it is obvious that the data extracted from the previous threshold (i.e, false alarm) should be rejected so as to improve quality (official notice is taken here)).

e) Regarding to claims 18 and 24, Bouillet et al. disclose an apparatus comprising:  
a data extraction unit configured to extract data from a received data stream (24 in Fig. 1);

a packet detector configured to compare a bit stream derived from a received digital data stream with an expected bit sequence to determine a correlation value for

detecting a data packet, the packet detector comprising means for comparing the received bit stream with the expected bit sequence (330 and 320 in Fig. 3; Col 4, L4-8); and

a sync-control module configured to receive the correlation value from the packet detector, the sync-control module controlling the data extraction unit for starting or restarting data extraction from the bit stream when the correlation value exceeds a threshold value indicating that a data packet has been detected (328 in Fig. 3; Col 4, L10-18; the acquired signal are send to phase detector 310 for demodulation; the segment sync and timing recovery network 24 has a feedback loop and is an on-going process).

Bouillet et al. disclose acquire signal that exceeds the threshold value in the sync generator (328 in Fig. 3), but failed to teach storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value.

However, Persson et al disclose comparison of a correlation value with a variable threshold value, wherein the correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25). Therefore, it is obvious to one of ordinary skill in art to combine the teaching of updating correlation value with threshold value as taught by Persson et al in the digital receiver of Bouillet et

al. This way the threshold value is updated as the maximum correlation value continuously. By doing so, provide better signal receiving process and reduce probability of error.

f) Regarding to claims 22, 23 and 25, Bouillet and Persson et al disclose synchronizes the received data stream based on the stored maximum correlation value (combine the teaching of updating correlation value with threshold value as taught by Persson et al (206 and 208 Fig. 6) with the sync generator and sync detector of Bouillet et al.(28 in Fig. 1 and 328 in Fig. 3)).

4. Claims 16, 17, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouillet et al (US 6,445,423) in view of Persson et al (US 6,587,500), further in view of Gurney et al. (US 5,619,542).

a) Regarding claims 16, 19 and 26, Bouillet et al and Persson disclose all the subject matters above except for the specific teaching of an initial timing estimator which received the digital data stream for determining an initial estimate prior to starting data extraction for synchronizing data extraction with data stream symbols.

Gurney et al, in the same field of endeavor, disclose an optimal sampling and timing estimation system, comprising symbol timing estimator (204 in Fig.2); symbol timing decimator (202); and a selector (206). The symbol timing decimator minimizes receiver signal's measured or estimated distortion. It also provides highest possible signal to noise ratio in a digital receiver. Therefore, it is obvious to one of ordinary skill in art to combine the efficient timing estimation system of Gurney et al with the digital

receiver of Bouillet et al. By doing so, provide optimal receiver system with better reception signal quality, lessen power consumption, and reduce production cost.

b) Regarding claim 17, Bouillet et al and Persson disclose all the subject matters above except for the specific teaching of timing of sampling is continuously tracked by comparing timing of symbols within an oversampled bit stream with actual timing of the sampling and correcting the timing of the sample if a deviation between the timing of the sampling and the timing of the symbols exceeds a value.

Gurney et al, in the same field of endeavor, disclose an optimal sampling and timing estimation system, where oversampled data and optimal sampling phase are coupled with symbol timing decimator (as shown in Fig. 2). This provides highest possible signal to noise ratio in a digital receiver. Therefore, it is obvious to one of ordinary skill in art at to combine the efficient timing estimation system of Gurney et al with the digital receiver of Bouillet et al. By doing so, provide optimal receiver system with better reception signal quality, lessen power consumption, and reduce production cost.

#### ***Allowable Subject Matter***

5. Claims 20, 21, 27 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Puente whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Puente  
/E. Y. P./  
Examiner, Art Unit 2611

May 9, 2008

/CHIEH M FAN/  
Supervisory Patent Examiner, Art Unit 2611